Botany Biological Assessment and Biological Evaluation

2016

Contents

I. Introduction 1
II. Current Management Direction 1
III. Methodology for Analysis 2
IV. Description of Proposed Action 2
V. Species Evaluated for the Pine Mountain project 3
VI. Environmental Consequences 4
VI. Design Criteria, Mitigation and Monitoring for Botanical Resources 4
VII. Invasive Non-Native Plants Report and Risk Management 5
VIII. References 5
Appendix 1. Analysis of potential Forest Service Sensitive plant species to occur in proposed Pine Mountain project. 6
Appendix 2. Pine Mountain project Northwest Forest Plant Survey and Manage (S&M) Report 9

I. Introduction

The purpose of this Biological Assessment and Biological Evaluation (BA/BE) is to review the proposed Pine Mountain Late-Successional Reserve Habitat Protection and Enhancement Project (Pine Mountain project) in sufficient detail to determine its effects on certain plant species and habitats of concern. Specifically, a BA is prepared to evaluate the project's likelihood of having adverse effects on Threatened, Endangered, and Proposed species, and a BE is done to determine whether a proposed action will result in a trend toward a sensitive species becoming federally listed as Threatened or Endangered.

The proposed Pine Mountain project is intended to restore fire-resilient communities and reduce hazardous fuels through a combination of non-commercial, pre-commercial, and commercial thinning; prescribed fire; hand and machine piling; and mastication on 7,830 acres.

II. Current Management Direction

All TES plant locations are managed according to policy direction in the Forest Service's Manual and Handbook for TES plants. In planning and implementing resource projects, known locations of TES plants are avoided or effects on them are mitigated. Forest Service policy calls for maintenance of viable populations of sensitive species throughout their geographic range (FSM 2672.32; FSM 2670.5.22). If populations of TES species previously unknown to occur on the Forest are discovered, they are automatically added to the Forest's sensitive species list and protected.

Specific management directions for sensitive plant species considered in this document are contained in the 1995 Mendocino National Forest Land Resource Management Plan. The goal articulated by the Plan for TES plants is to "provide favorable habitat conditions for increased populations of sensitive plants so they no longer require special management consideration" (LRMP, IV-3) (USDA, 1995a.)

III. Methodology for Analysis

The first step in the analysis was to determine whether any of the species of interest were known to be present in the vicinity of project area. This was done by checking the NRM TESP-IS database, as well as office files and maps. Next, the potential for species of interest to occur in the vicinity of the project area was evaluated based on GIS information, such as vegetation types, soils, and geology, and proximity to water. Field surveys were then conducted in areas that were potentially suitable habitat.

IV. Description of Proposed Action

Please see chapter 2 of the EIS for a detailed description of the alternatives and how they were developed.

Alternative 1- No Action

Alternative 2- Proposed Action- The primary proposed activities include fuels reduction treatments on approximately 7,830 acres southwest of Lake Pillsbury in the Pine Mountain vicinity. The Planning Area is 10,200 acres in size and comprises both Late Successional Reserve (LSR) and Matrix land designations. Of approximately 7,830 acres to be treated, ~5,690 acres are within the Pine Mountain LSR and ~2,140 acres are in Matrix lands. The project emphasizes fuel reduction activities and habitat management for the protection and enhancement of late-successional species. The project area was chosen for treatment based on past fire history and the existing conditions that pose a threat to late-successional habitat. Connected activities include road maintenance, temporary road construction, and motorized trail management. A detailed description of the Proposed Action can be found in Chapter 2 of the Environmental Impact Statement (EIS).

Alternative 3- No New Temporary Road Construction
This alternative includes the actions proposed in Alternative 2, except that no new temporary roads would be constructed.

Alternative 4- No commercial thinning in Riparian Reserves
This alternative would follow all the actions proposed in Alternative 2, with the exception of no commercial thinning.

Alternative 5- No commercial thinning in known Northern Spotted Owl nesting habitat
This alternative would follow all the actions proposed in Alternative 2, with the exception of no commercial thinning.

V. **Species Evaluated for the Pine Mountain project**

Biological Assessment

The US Fish and Wildlife Service's roster of possible listed plant species on the Mendocino National Forest are water howellia (*Howellia aquatilis*) and Keck's checker-mallow (*Sidalcea keckii*).

Water howellia is a small aquatic annual, listed as Threatened. It occurs in the seasonal draw-down zone of small ponds shaded by forest vegetation. This species is threatened by the loss of wetland habitat and habitat changes from timber harvest, livestock grazing, residential development, and competition with introduced plant species. Water howellia historically occurred throughout the Pacific Northwest but it now restricted to specific habitats (Fed Reg 1994). It is currently known on the Mendocino National Forest from seven occurrences on the Covelo Ranger District. There are no occurrences of water howellia in the Pine Mountain proposed treatment units, nor is there any suitable habitat. The closest known occurrences of water howellia are approximately 35 miles north of the proposed project area. It will not be discussed further in this document.

I have determined that the proposed Pine Mountain project would have no effect on water howellia.

Keck's checker-mallow is an annual forb, listed as Endangered. It is known conclusively only from Tulare and Fresno Counties, where it occurs at low elevations on the grassy, open Sierra foothills (Federal Register, 2003). Plants from Colusa County originally described as *Sidalcea disploscypha* were later annotated as *S.keckii* in 2008 (Hill, 2009). The true identity of the plant is now a matter of debate and awaits resolution through genetic testing. Keck's checker-mallow has never been observed or collected on the Mendocino National Forest. The low-elevation areas of the project area are covered by chaparral and are not suitable habitat for Keck's checker-mallow. It will not be discussed further in this document.

I have determined that the proposed Pine Mountain project would have no effect on Keck's checker-mallow.

Biological Evaluation

There are 23plant species and 1 fungus on the Mendocino National Forest's Sensitive Plant List (USDA, 2013).

There are no known Sensitive plant occurrences in the proposed project area. The proposed project area contains primarily mixed conifer, pine-oak woodland, and mixed chaparral vegetation. There are also small grasslands and a few areas of riparian vegetation associated with streams, seeps, and springs. The area was first visited in May 2008 to evaluated habitat. The moister drainages appeared to have possibly suitable habitat for *Cypripedium fasciculatum* and *Cypripedium montanum*. Please see Appendix 1 for a description of the suitable habitat for each species and whether that habitat is likely to occur in the proposed project area. Suitability is evaluated based on vegetation, soils, landform, aspect, and elevation.

Focused surveys for *Cypripedium fasciculatum* and *Cypripedium montanum*were conducted during July 2008 and July 2014, but no occurrences were found. The nearest known occurrences of these species are approximately 13 miles north and northeast of the proposed project area. Other surveys for *Cypripedium fasciculatum* and *Cypripedium montanum*on apparently suitable habitat in the southern portion of the Forest have also been negative.

Seeps and other perennially damp areas may be suitable habitat for *Botrychium crenulatum*and *Ophioglossum pusillum*. Surveys for these species were not conducted since their habitat is protected from project impacts.

The majority of the soils present in the proposed area are not known to support Sensitive plant species. There are small areas of Maymen-Etsel-Speaker and Maymen-Etsel-Snook soils, which do support the Sensitive species *Epilobium nivium* and *Sidalcea pillburiensis* elsewhere on the Forest. Despite the presence of these soils, the proposed project area does not have suitable habitat for *Epilobium nivium*, which grows in crevices of rocky outcrops and dry talus and shaley slopes on mountain tops, typically with a southern exposure. *Sidalcea pillburiensis* occurs in fairly open chapparal and knobcone pine vegetation, possibly as a fire follower.This plant community is not present in the project area.

VI.Environmental Consequences

There are no known occurrences of T&E or Forest Service sensitive plants within the Pine Mountain project area. There will be no effect (direct, indirect, or cumulative) to T&E or Forest Service sensitive species. There will be protection measures where suitable habitat exists for sensitive plants to reduce negative effects.

VI. Design Criteria, Mitigation and Monitoring for Botanical Resources

Design criteria are a component of the proposed action. They do not apply to the no-action alternative, except where implemented as part of other ongoing activities in the project area. The botany design features listed here address specific botanical concerns such as retention of plant and fungi habitat and management of invasive species. Other disciplines, such as hydrology/geology/soils,fisheries, and wildlife, prescribe additional design criteria that are also beneficial to botanical resources. Those design criteria can be found in the individual specialist's reports and in Chapter 2 of the EIS.

Botany Design Features

- Include in all contracts a provision to extend protection to any sensitive plants listed on the Regional Forester's Sensitive Species List and to provide for pausing and re-evaluating operations in the vicinity of populations that are discovered after completion of the Biological Evaluation or NEPA document.
- Apply soil productivity standards for conservation of surface organic matter and large woody material (FSH 2509.18) to maintain fungi habitat components.
- Apply Mendocino LRMP standards and guides for woody material retention to maintain fungi habitat components.
- Include in all contracts a provision for equipment cleaning to reduce the introduction of noxious weeds.
- Where equipment and vehicles need to use roadsides near weed infestations, either flag the infestations for avoidance or manually remove all aboveground weed biomass.

- Monitor roadsides and treatment units for changes in weed occurrences for at least three years after treatments are completed. Implement weed control practices where necessary.
- If seeding is needed on any decommissioned roads, landings, and heavily used skid trails, use native species and/or non-persistent/sterile cereal grains. As an alternative to seeding consider covering exposed soils with duff from adjacent undisturbed sites.
- If needed, use only certified weed-free straw or mulch; use weed-free gravel for road surfaces.

VII. Invasive Non-Native Plants Report and Risk Management

Surveys conducted in 2014 determined that there are occurrences of cheatgrass, yellow starthistle, medusahead, and bullthistle scattered throughout the project area, primarily along unshaded roadsides and in open grasslands. Areas within the 2008 Back Fire with high canopy loss have shown a flush of non-native species establishment. There are no Class A weeds in the project area.

Design criteria included in the proposed Action intended to reduce the risk of weed introduction and expansion are:

- Include in all contracts a provision for equipment cleaning to reduce the introduction of noxious weeds.
- Where equipment and vehicles need to use roadsides near weed infestations, either flag the infestations for avoidance or manually remove all aboveground weed biomass.
- Monitor roadsides, dozer-piled burn piles, landings, and thinning units for changes in weed occurrences for at least three years after treatments are completed. Implement weed control practices when necessary.
- If seeding is needed on any decommissioned roads, landings, or heavily used skid trails, use native species and/or non-persistent/sterile cereal grains. As an alternative to seeding consider covering exposed soils with litter from adjacent undisturbed sites.
- Mulch burn pile “scars” with litter and small woody material from the surrounding area.

VIII. References

Federal Register/Vol. 59., No. 134/Thrusday, July 14, 1994/Rules and Refulations. Endangered and Threatened Wildlife and Plants; The Plant, Water Howellia (*Howellia aquatillis*), Determined to be a Threatened Species. Agency: US Fish and Wildlife Service, Interior.

Federal Register/ Vol. 68, No. 52/ Tuesday, March 18, 2003/ Rules and Regulations. Endangered and Threatened Wildlife and Plants; Final Designation of Critical Habitat for *Sidalcea keckii* (Keck’s checkermallow). AGENCY: Fish and Wildlife Service, Interior.

Hill, S.R. 2009. Notes on California Malvacae including Nomenclatural Changes and Additions to the Flora. Madroño, Vol. 56, No.2, pp.104-111.

USDA Forest Service. 1991. Soil Management Handbook FSH 2509.18. WO Amendment 2509.19-91-1. USDA Forest Service.

USDA Forest Service. 1995. Forest Service Handbook, R-5 Supplement 2509.18-95-1. Soil Management Handbook. San Francisco, CA.

USDA Forest Service. 1995a. Mendocino National Forest Land and Resource Management Plan.

USDA Forest Service. 2013. Region 5 Regional Forester's Sensitive Plants Species list. Last updated 2013. Last accessed 11/7/2016. http://www.fs.usda.gov/main/r5/plants-animals

USDA Forest Service. 2005. Forest Service Manual 2600. Wildlife, Fish, and Rare Plant Habitat Management.

Appendix 1.Analysis of potential Forest Service Sensitive plant species to occur in proposed Pine Mountain project.

Plant Name	Habitat	Potential Habitat?
FUNGI		
Tricholomopsis fulvescens (tawny tricholomopsis)	On well-rotted conifer logs, low elevation, high moisture	No- too dry.
PLANTS		
Anisocarpus scabridus (scabrid alpine tarplant)	Rock outcrops and scree slopes; open, sub-alpine veg; above 5,500 ft.	None present; project elevation too low
Antirrhinum subcordatum (dimorphic snapdragon)	Serpentine chaparral openings on Henneke soils; fine talus or shot texture decomposed mudstone/ sandstone	None present.
Balsamorhiza macrolepis (big-scale balsamroot)	In openings or under light brush cover in ponderosa pine, chapparal, vernally moist meadows and grasslands, and oak woodlands; sandstone, serpentine, or basalt outcrop; ricky clays of metasedimentary origin; loams of granitic origin; elev below 4,600 ft	None present.
Botrychium crenulatum (scalloped moonwort)	Meadows, seeps, springs, and riparian areas; most often found on the lip of creek banks or on their sides, mostly within coniferous forest habitats; strong mycorrhizal requirements	**Potential suitable habitat within project boundary. Surveys not conducted since these habitats are protected from project impacts.**

Brodiaea rosea (Indian Valley brodiaea)	Grows in open, sunny spots in oak woodland at the edges of ephemeral drainages, serpentine flats, and gentle slopes in gravelly (red) gumbo cly derived from serpentine.	None present.
Calycadenia micrantha (small-flowered calycadenia)	Dry, open, rocky ridges, hillsides, and talus; 500-1,500 m elev; grows only in areas of low plant density, in or closely associated with exposed, very barren, rocky areas or areas of packed mineral materials.	None present.
Cypripedium fasciculatum (clustered lady's-slipper)	Douglas-fir dominated and mixed conifer forests in mid-late seral stands whose structure allows some light to reach the forest floor. Occurrences have also been documented in riparian areas; north-aspect white and red fir conifer stands that were above approximately 5,600 ft elev and were usually within 10 to 20 feet of a game trail; mid elevation dry north aspect. These sites, between 4,200 to 4,550 ft elev, are dominated by Douglas-fir and white fir conifer stands; steep-sloped, mesic drainage in mixed conifer forests between approximately 3.800 and 4,200 ft elev.	**Habitat may be present in project area, but no occurrences found from ground surveys.**
Cypripedium montanum (mountain lady's-slipper)	Douglas-fir, white fir, and mixed conifer forests in the mid-late seral stages, as well as oak woodlands and riparian areas; majority of the known sites occur between 2,500 and 4,000 ft elev.; aspect is primarily northerly; slope is between 25 and 50%; canopy closure is generally between 60 and 80%. The substrate is varied and includes such types as ultramafic and limestone.	**Habitat may be present in project area, but no occurrences found from ground surveys.**
Epilobium nivium (Snow Mountain willowherb)	Grows in crevices of rocky outcrops and dry talus and shaley slopes on mountain tops, typically with a southern exposure. Also found on rock outcrops all the way down into the montane chaparral and mixed conifer type.	None present.
Eriastrum tracyi (Tracy's eriastrum)	Foothill chaparral, on extremely shallow mudstone or sandstone soils; disturbed openings in chamise on serpentine.	None present.
Eriogonum nervulosum (Snow Mountain buckwheat)	Barren serpentine outcrops and slopes; Yollabolly-rock outcrop-freezout complex of soils; at higher elevations (6,500-6,890 ft), it grows on exposed rocky flats and scree slopes	None present.

	or in the crevices of outcrops. On serpentine barrens it grows down to about 1,000 ft elev.	
Eriogonum tripodum (tripod buckwheat)	Alluvial serpentine soils in foothill and cismontane woodlands.	None present.
Harmonia stebbinsii (Stebbins' harmonia)	Endemic to serpentine soils on south-facing slopes.	None present.
Hesperolinon drymarioides (drymaria-like western flax)	Serpentine grey pine-chaparral, northern interior cypress forest, and mixed serpentine chaparral; opening between trees and shrubs in dark red serpentine soils of the Henneke series.	None present.
Leptosiphon nuttallii ssp. howellii (Mt. Tedoc leptosiphon)	Commercial timber stands; Jeffrey pine, incense-cedar, Douglas-fir, and white fir at mid elevations on igneous-derived soils.	None present.
Lewisia stebbinsii (Stebbins' lewisia)	Dry, exposed gravelly flats in volcanic rock and rubble, adjacent to sparse Jeffrey pine/white fir forest; elev 5,500-6,700 ft.	None present, elevation too low
Lupinus antoninus (Anthony Peak lupine)	Rocky outcrops and dry talus and shaley slopes on mountain tops *above timber line*; elev 4,000-7,500 ft	None present. Elevation too low.
Mielichhoferia elongata (elongate copper moss)	Foothill woodland habitat, on moist rocks and soil; tolerates heavy metals/ serpentine; 0-3,550 ft. elev	None present.
Ophioglossum pusillum (northern adder's tongue)	"Draw-down-zone" of ponds; near springs in open, moist, meadows	**Potential suitable habitat within project boundary. Surveys not conducted since these habitats are protected from project impacts.**
Peltigera gowardii (veined water lichen)	On rocks in cold water creeks with little or no sediment or disturbance. Generally 1st to 2nd order streams, 5ºC water temperature.	None present.
Sidalcea hickmanii ssp. pillsburiensis (Lake Pillsbury checkerbloom)	Maymen-Etsel-Snook soil complex, 30% to 75% slopes; chapparal and knobcone pine vegetation.	None present.
Sulcaria badia (bay horsehair lichen)	On trees; open, flat valleys dominated by large oaks; oak woodland; mesic mixed hardwoods/ Douglas-fir forest	None present.
Tracyina rostrata (beaked tracyina)	Valley and foothill grasslands	None present.

Appendix 2. Pine Mountain project Northwest Forest Plant Survey and Manage (S&M) Report

The standards and guidelines for Survey and Manage species are designed to help the Northwest Forest Plan provide for the persistence of late-successional and old-growth forest related species. Survey and Manage species are grouped into six categories(A-F), which are based on their level of relative rarity, whether it's possible to reasonably and consistently detect occupied sites during pre-project surveys, and the level of information known about the species. Survey and Manage provisions for plants and fungi, are applied at the species level and are directed to the range (or portion of range) of each species, to the particular habitats where concerns exist for its persistence, and to the management activities considered "habitat disturbing" for that species. For more specific discussion of Survey and Manage, see the "2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage [and related] mitigation measures."

Category A and C species require pre-project surveys in suitable habitat for habitat-disturbing activities. Protective management of known sites is also required. Species in these categories that may have suitable habitat within the project area are:

Cypripedium fasciculatum
Cypripedium montanum

Cypripedium fasciculatum(Mountain lady's slipper orchid) *and Cypripedium montanum*(Clustered lady's slipper orchid), both Category C vascular plants, grow beneath the moderate to dense overstory of mature mixed conifer forest. They are most frequently found on steep slopes near perennial streams. Shrubby Pacific dogwood and big-leaf maple are very commonly associated with these Cypripediums, and are an indicator of the level of humidity and shading required by the orchids. Site visits to the potentially suitable habitats did not yield positive results, as described in the sensitive species discussion (Biological Evaluation).

Category B plant, animal, and fungi species require management of all known sites and may require "equivalent effort" pre-disturbance surveys. They are not considered to be reliably detectable even when they are present, and strategic surveys are the preferred method for finding them. Plant species with incomplete strategic surveys as of December 2009 now require equivalent effort surveys prior to habitat-disturbing activities. Surveys for category B species are required only in suitable habitat in old-growth forest, not in all late-successional forest (2001 ROD). Because there is no old-growth habitat in the project area that will be disturbed, no surveys are required. There are no known sites of any Category B species in the vicinity of the project area.

Category D and E species require management of known sites and strategic surveys. Equivalent effort surveys are never required in lieu of strategic surveys.

There is a known site of *Galerina heterocystis*, a delicate, saprophytic, mushroom-type Category E fungus, within the greater project area boundary. Single to gregarious, it attaches to the base of mosses and lower dead stems and roots. It was recorded at an FIA plot near Benmore Creek. Habitat for this species could be degraded by loss in overstory canopy (increased air and soil temperatures, decreased relative humidity, and decreased litter/duff moisture) or by elimination of the litter and/or duff layers. While it is not inside a treatment unit, and no impacts are expected, the known site will be buffered by 300-ft. and the buffered area will be monitored during project implementation to ensure that project activities in the vicinity do not negatively impactsuitable habitat.

Category F species are those about which very little is known, but they are not so rare that inadvertent loss of sites is likely to lead to loss of viability. They are included in strategic surveys, in hopes of learning more about their ecology and determining if they should be assigned to another Survey and Manage category, but there is no requirement for managing known sites.

Survey and Manage Summary

There are no known sites of category A, B, C, D, and F Survey and Manage species in the Pine Mountain project area. There is suitable habitat for two category C species, but no plants were found. The Survey and Manage Category E species *Galerina heterocystis* has been recorded at an FIA plot near Benmore Creek.

2001 ROD Compliance Review: Survey & Manage Species

Survey & Manage (S&M) documentation for the Pine Mountain Late-Successional Reserve Habitat Protection and Enhancement Project, Upper Lake Ranger District, Mendocino National Forest, 2016.

Strategy (See 1)	Taxon	Species (see 2)	2001 S&M Category (see 1)	Project contains suitable habitat? (see 3)	Project may negatively affect species or habitat? (see 3)	Pre-disturbance Surveys Required? (see 3)	Survey Date (month/year)	Survey Results (see 3)	Project Contains "Known or High Priority Sites"? (see 4)
Pre-disturbance surveys followed by appropriate management strategy.	Bryophyte	Ptilidium californicum	A	No	No	NO	N/A	N/A	
	Lichen	Usnea longissima	A	No	No	NO	N/A	N/A	
	Vascular	Botrychium minganense	A	No	No	NO	N/A	N/A	
	Vascular	Cypripediium montanum	C	Yes	Yes	YES	7/'08, 7/'14	Negative	
	Vascular	Cypripedium fasciculatum	C	Yes	Yes	YES	7/'08, 7/'14	Negative	
MNF has known or high priority sites somewhere on the Forest.	Fungi	Galerina heterocystis	E						YES
	Fungi	Galerina vittaeformis	B						NO
	Fungi	Mycena tenax	B						NO
	Fungi	Plectania milleri	B						NO
	Fungi	Tricholomopsis fulvecens	B						NO
	Lichen	Leptogium teretiusculum	E						NO
MNF does not have known or high priority sites.		(see project file)	B, D, or E						
Protection not required		(see project file)	F						

1. Summary of survey and protection strategies for Survey and Manage Species under the 2001 ROD.

Relative Rarity	Pre-Disturbance Surveys Practical	Pre-Disturbance Surveys Not Practical (or not needed)	Status Undetermined
Rare	Category A • Manage All Known Sites • Pre-Disturbance Surveys • Strategic Surveys	Category B • Manage All Known Sites • N/A • Strategic Surveys	Category E • Manage All Known Sites • N/A • Strategic Surveys
Uncommon Category	Category C • Manage High-Priority Sites • Pre-Disturbance Surveys • Strategic Surveys	Category D • Manage High-Priority Sites • N/A • Strategic Surveys	Category F • N/A • N/A • Strategic Surveys

2. This species list is based on Table 1-1 of the 2001 Record of Decision and includes all S&M species that require consideration for specific projects on the Mendocino National Forest. The project file shows the rational for this list and contains all S&M species whose ranges overlap the Mendocino National Forest.
3. Where required, pre-disturbance surveys followed the appropriate survey protocol (see http://www.blm.gov/or/plans/surveyandmanage/). Where a species was found, the appropriate management recommendations have been applied (see http://www.blm.gov/or/plans/surveyandmanage/).
4. Known and high priority sites are defined as those historic and current locations of a species reported by a credible source, available to field offices, and that do not require additional species verification or survey by the Agency to locate the species.

Statement of Compliance: Based on the preceding information (refer to Table A above) regarding the status of surveys and site management for Survey & Manage species, it is my determination that this project complies with the provisions of the 2001 Record of Decision and Standard and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines. For the foregoing reasons, this project is in compliance with the 2001 ROD as stated in Point (3) on page 14 of the January 9, 2006, Court order in Northwest Ecosystem Alliance et al. v. Rey et al.

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District Ranger Date: